UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

February 11, 2010

Kevin Walsh, Vice President, Operations
Entergy Operations, Inc.
Arkansas Nuclear One
1448 SR 333
Russellville, AR 72802

Subject: ARKANSAS NUCLEAR ONE - NRC INTEGRATED INSPECTION REPORT 5000313/2009005 AND 05000368/2009005

Dear Mr. Walsh:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Arkansas Nuclear One facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 14, 2010, with you and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents four NRC identified violations, one self-revealing finding, and one self-revealing violation of very low safety significance (Green). Five of these findings were determined to involve violations of NRC requirements. Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Arkansas Nuclear One. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector. The information you provide will be considered in accordance with NRC Inspection Manual Chapter 0305.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Jeff Clark, P.E., Chief
Project Branch E
Division of Reactor Projects

Dockets: 05000313; 05000368
Licenses: DPR-51; NPF-6

Enclosure:
NRC Inspection Report 05000313/2009005; 05000313/2009005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Dockets:	05000313, 05000368
Licenses:	DPR-51, NPF-6
Report:	05000313/2009005 and 0500368/2009005
Licensee:	Entergy Operations, Inc.
Facility:	Arkansas Nuclear One, Units 1 and 2
Location:	Junction of Hwy. 64 W and Hwy. 333 South Russellville, Arkansas
Dates:	September 24 through December 31, 2009
Inspectors:	A. Sanchez, Senior Resident Inspector J. Josey, Resident Inspector J. Rotton, Resident Inspector
Approved By:	Jeff Clark, P.E., Chief, Project Branch E Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000313/2009005; 05000368/2009005; 09/24/2009 - 12/31/2009; Arkansas Nuclear One, Integrated Resident Report; Operability Evaluations, Identification and Resolution of Problems, Event Follow-up.

The report covered a 3-month period of inspection by resident inspectors. Two Severity Level IV and three Green noncited violations of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using NRC Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors documented a self-revealing, noncited violation of Technical Specification 6.4.1.a for the licensee's failure to follow Operating Procedure OP-1015.008, "Unit 2 SDC Control," Revision 30. Specifically, Unit 2 operators did not obtain permission from operations or plant management prior to performing maintenance on any protected train components. In this particular case, both trains of shutdown cooling, and their associated power supplies, were declared protected trains by operations. On September 20, 2009, operation's personnel decided to perform an offsite power fast transfer test on the train A and train B vital buses. During the performance of the test on the train A vital bus, a fast transfer relay failed to actuate causing the slow transfer of the bus power supply. This caused the bus to de-energize and caused the inservice shutdown cooling pump to trip. The loss of shut down cooling resulted in a reactor coolant system temperature rise of 5 degrees. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-C-2009-2002.

  The inspectors determined that the failure of the operations staff to follow Operating Procedure OP-1015.008, "Unit 2 SDC Control," Revision 30, was a performance deficiency. Specifically, the Unit 2 operations test team failed to obtain operations manager or plant manager permission prior to performing surveillance testing on the protected systems or equipment. The performance deficiency was determined to be more than minor because it was associated with the human error attribute and adversely affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown conditions and is therefore a finding. The failure to follow procedures resulted in the loss of the only train of shutdown cooling that was in service. This finding was evaluated for significance using NRC Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 3, for shutdown operations, and was determined to be of very low safety significance because the core heat removal guidelines associated with instrumentation, training and procedures, and equipment were met. Specifically, both trains of shutdown cooling remained operable with necessary support systems. This finding was determined to have a crosscutting aspect in the area of human performance, associated with decision making [H.1(a)] in that the licensee failed to make safety-significant or risk-significant decision using a systematic process, especially faced with uncertain or unexpected plant conditions, to ensure safety was maintained. In this case, although the licensee formally defined the authority and roles for decisions affecting nuclear safety, the shift manager and the shift operations manager oversight failed to implement their roles and authorities in deciding to conduct the offsite power transfer test on both protected trains of shutdown cooling (Section 4OA3.1).

- Green. The inspectors documented a self-revealing finding for the licensee's failure to implement timely corrective action for industry operating experience associated with intake water blockage and for failure to implement effective corrective action stemming from a very similar event in 2006 where Unit 1 was forced to decrease reactor power due to an unexpected Shad run. The licensee entered this into their corrective action program as Condition Report CR-ANO-1-2009-1880.

  The licensee's failure to take timely and effective corrective actions in response to industry and site specific operating experience was determined to be a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the external events attribute and directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability and is therefore a finding. Specifically, the licensee's failure to take timely and effective action led to the October 12, 2009, Unit 1 reactor down power due to a Shad (fish) influx into the intake structure. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, Initiating Events Cornerstone, the finding was determined to have a very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding did not have a crosscutting aspect because the cause of the performance deficiency was not associated with any of the crosscutting aspects listed in Manual Chapter 0305, "Operating Reactor Assessment Program," dated August 11, 2009 (Section 4OA3.2).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawing," regarding the licensee's failure to follow the requirements of Procedure EN-OP-104, "Operability Determination Process," Revision 4. Specifically, on October 15, 2009, following removal of a seismic restraint from the Train B Containment Spray Valve 2CV-5672-1 for preventive maintenance purposes, the inspectors identified that the shift manager approved and documented an operability determination using a cancelled engineering change document. The licensee entered this into their corrective action program as Condition Report CR-ANO-2-2009-3794.

The failure of the licensee to follow the requirements of Procedure EN-OP-104, "Operability Determination Process," Revision 4, and approve an adequate basis for operability was a performance deficiency. The performance deficiency was determined to be more than minor because the condition of not performing adequate operability determinations could become more significant if left uncorrected and is therefore a finding. Using Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because it did not result in the loss of safety function of any technical specification required equipment. It was determined that the finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program [P.1(c)], in that, the licensee failed to thoroughly evaluate problems such that the resolutions addressed causes and extent of conditions, as necessary. (Section 1R15.1).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of licensee personnel to correct a condition adverse to quality - removal of rigid seismic restraint for valve 2CV-5672-1, containment spray pump 2P-35B minimum recirculation valve, in the support of motor-operated valve actuator maintenance with an invalid engineering change to support the containment spray system's seismic operability licensing basis. This condition should have caused Unit 2 to enter Technical Specification 3.0.3 for 31 minutes on October 15, 2009. The inspectors had previously identified that the licensee was incorrectly applying ASME Code, Section III, Appendix F allowables to maintain operability for planned preventative maintenance. This issue was originally entered into the corrective action program as Condition Report CR-ANO-C-2009-1408. The licensee took action to cancel several engineering change documents, but did not review previously approved work orders to ensure that the removal of rigid seismic restraints would be prevented. This issue has been entered into the licensee's corrective action program as Condition Reports CR-ANO-C-2009-2193, CR-ANO-2-2009-3356, and CR ANO-2-2009-3794.

  The failure to correct a condition adverse to quality associated with the removal of motor-operated valve actuator seismic restraints without a valid engineering evaluation was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external events attribute of the Mitigating Systems Cornerstone and directly affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Specifically, the engineering change used to justify seismic operability was invalid and should not have been used to support continued operability and had been cancelled for future use. Using NRC Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, Mitigating Systems Cornerstone, the finding was determined to have very low safety significance because it did not represent an actual loss of safety function and did not screen as potentially risk significant due to a seismic initiating event. The cause of this finding was determined to have a crosscutting aspect in the area of human performance associated with resources [H.2(c)] in that the licensee failed to have complete and accurate procedures to prevent engineering changes that had been cancelled from being used in work orders that had been previously planned and approved for work (Section 4OA2).

Cornerstone: Miscellaneous

- Severity Level IV. The inspectors identified a noncited violation of 10 CFR 50.73, “Licensee Event Report System,” associated with the licensee’s failure to submit a licensee event report within 60 days following discovery of an event meeting the reportability criteria as specified. Specifically, on September 22, 2009, the licensee completed their analysis of an issue associated with degradation of the latching mechanism of a station high energy line break door. The licensee determined that an unanalyzed condition may have existed for the period that the door was unlatched. The licensee reported the unanalyzed condition per 10 CFR 50.73. The licensee further determined that, due to this door latch issue, a main feedwater pipe critical crack high energy line break event would force the door open which would create a harsh environment in the adjoining emergency feedwater pump room, which would result in both trains of emergency feedwater being inoperable. The licensee determined that this was a safety system functional failure. Based on this, the inspectors determined that this condition was reportable per 10 CFR 50.73(a)(2)(v) since this resulted in a condition which affected both trains of a system described in the Safety Analysis Report that was needed to mitigate the consequences of an accident. Although the licensee submitted the licensee event report indicating that Unit 1 was in an unanalyzed condition, they failed to report the safety system functional failure aspect. The licensee entered this issue into their corrective action program as Condition Report CR-ANO-C-2009-2590.

The inspectors reviewed this issue in accordance with NRC Inspection Manual Chapter 0612 and the NRC Enforcement Manual. Through this review, the inspectors determined that traditional enforcement was applicable to this issue because the NRC's regulatory ability was affected. Specifically, the NRC relies on the licensees to identify and report conditions or events meeting the criteria specified in regulations in order to perform its regulatory function; and when this is not done, the regulatory function is impacted. The inspectors determined that this finding was not suitable for evaluation using the significance determination process, and as such, was evaluated in accordance with the NRC Enforcement Policy. The finding was reviewed by NRC management and because the violation was determined to be of very low safety significance, was not repetitive or willful, and was entered into the corrective action program, this violation is being treated as a Severity Level IV noncited violation consistent with the NRC Enforcement Policy. The finding did not have a crosscutting aspect because the cause of the performance deficiency was not associated with any of the crosscutting aspects listed in Manual Chapter 0305, "Operating Reactor Assessment Program," dated August 11, 2009 (Section 4OA3.4).

- Severity Level IV. The inspectors identified a noncited violation of 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," for the licensee's failure to notify the NRC Operations Center within 8 hours following discovery of an event meeting the reportability criteria as specified. Specifically, on September 22, 2009, the licensee initiated a 10 CFR 50.72 (b)(3)(xiii) 8-hour nonemergency report at 12:46 p.m. CST to the NRC Operations Center based on an event time of 5:11 a.m. Operations staff notified the resident inspectors of the 8-hour event notification to the NRC Operations Center later that afternoon. The inspectors questioned whether the timing of the NRC notification met the requirements of the applicable regulation. The inspectors determined that the initial loss of power to the emergency offsite facility occurred at approximately 10:40 p.m. on September 21, 2009, the emergency offsite facility diesel generator K8 started but failed to supply power to the facility, and this was reported to the control room at 11:45 p.m. on September 21, 2009. Normal power was restored at 4:20 a.m. Due to the time that the emergency offsite facility was degraded, this was considered a major loss of assessment, communications, and response capability, and the licensee initiated a 10 CFR 50.72 (b)(3)(xiii) 8-hour nonemergency report, but not within the 8-hour reporting period of the discovery. The licensee entered this issue into their corrective action program as Condition Report CR-ANO-C-2008-2024.

  The failure to report an applicable nonemergency 8-hour event notification report within the required time frame was determined to be a performance deficiency. The finding was determined to be applicable to traditional enforcement because the NRC's ability to perform its regulatory function was potentially impacted by the licensee's failure to make a required notification within the specified time frame. The finding was not suitable for evaluation using the significance determination process and was therefore evaluated in accordance with the NRC's Enforcement Policy. The finding was reviewed by NRC management and was determined to be of very low safety significance (Severity Level IV) consistent with the NRC Enforcement Policy. The cause of this finding was determined to have a crosscutting aspect in the area of human performance associated with resources [H.2(c)] in that the licensee failed to have complete and accurate procedures to properly evaluate problems when faced with unexpected conditions (Section 4OA3.5).

B. Licensee-Identified Violations

Violations of very low safety significance, which were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers (condition report numbers) are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the period at 100 percent power. On October 12, 2009, at 2:21 a.m., Unit 1 reduced reactor power to 92 percent due to an accumulation of Shad fish on the circulating water traveling screens. The reactor was returned to 100 percent power at 12:44 p.m. the same day. Reactor power remained at 100 percent for the rest of the reporting period.

Unit 2 began the period in Refueling Outage 2R20. On September 25, 2009, Unit 2 reached criticality and closed generator output breakers. Unit 2 reached 100 percent power on September 27, 2009. On December 8, 2009, at 8:31 a.m., main feedwater pump A tripped due to the loss of the thrust bearing. At 8:42 a.m., the reactor was manually tripped due to lowering steam generator level in steam generator A. On December 9, 2009, Unit 2 was taken critical. On December 10, 2009, Unit 2 reactor power achieved 70 percent power due to power limitations for one main feedwater pump in service. On December 13, 2009, following the repair of main feedwater pump A, reactor power was increased to 100 percent. Reactor power remained at 100 percent for the rest of the reporting period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01)

Readiness to Cope with External Flooding

a. Inspection Scope

The inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum flood. The evaluation included a review to check for deviations from the descriptions provided in the Safety Analysis Report for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors checked for obstructions that could prevent draining, checked that the roofs did not contain obvious loose items that could clog drains in the event of heavy precipitation, and determined that barriers required to mitigate the flood were in place and operable. Additionally, the inspectors performed an inspection of the protected area to identify any modification to the site that would inhibit site drainage during a probable maximum precipitation event or allow water ingress past a barrier. The inspectors also reviewed the abnormal operating procedure for mitigating the design basis flood to ensure it could be implemented as written. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one external flooding sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04)

.1 Partial Walkdown

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- November 3, 2009, Unit 1, emergency diesel generator K-4A while emergency diesel generator K4-B was out of service for maintenance

- December 10, 2009, Unit 2, train B main feedwater pump while train A main feedwater pump was out of service for a bearing repair

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Safety Analysis Report, technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

During the week of December 17, 2009, the inspectors performed a complete system alignment inspection of the Unit 2 service water system to verify the functional capability of the system. The inspectors selected this system because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors inspected the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- November 02, 2009, fire zone 1045, Unit 1 south battery and dc equipment room
- November 02, 2009, fire zone 2103-V, Unit 2 west battery room
- December 12, 2009, fire zone 2010/2035, Unit 2 service water intake structure
- December 12, 2009, fire zone 2025-JJ, Unit 2 emergency feedwater pump 2P-7B room

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

1. Internal Flooding

a. Inspection Scope

The inspectors reviewed the Safety Analysis Report, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the two areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- December 7, 2009, Unit 1, manhole MH-10, 120-volt and 480-volt power supply cables
- December 09, 2009, Unit 2, emergency safeguard feature pump B room

These activities constitute completion of two flood protection measures inspection sample as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On November 18 and 19, 2009, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements.

These activities constitute completion of one quarterly licensed-operator requalification program sample as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- Unit 1 reactor protection system

- Unit 2 reactor building ventilation

The inspectors reviewed events such as where ineffective equipment maintenance has resulted in valid or invalid automatic actuations of engineered safeguards systems and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices

- Identifying and addressing common cause failures

- Scoping of systems in accordance with 10 CFR 50.65(b)

- Characterizing system reliability issues for performance

- Charging unavailability for performance

- Trending key parameters for condition monitoring

- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or -(a)(2)

- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- December 04, 2009, Arkansas Nuclear One 500 KV switchyard lightning shield wire removal

- December 18, 2009, Arkansas Nuclear One 500 KV switchyard lightning tower erection

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- October 16, 2009, Unit 2, valve 2CV-5672, containment spray pump minimum flow recirculation valve

- October 30, 2009, Units 1 and 2, emergency diesel generator tornado depressurization design bases

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and Safety Analysis Report to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04.

b. Findings

.1 Inadequate Operability Determination Due to a Failure to Follow Procedure

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawing," regarding the licensee's failure to follow the requirements of Procedure EN-OP-104, "Operability Determination Process," Revision 4. Specifically, the inspectors identified that a shift manager approved and documented an inadequate basis for operability of the containment spray system.

Description. The inspectors were following up on a previous issue involving inadequate operability evaluations for removal of rigid seismic restraints associated with preventative maintenance which was documented in Condition Report CR-ANO-C-2009-1408. This issue involved the licensee using Engineering Change 15145 to justify system operability with the seismic restraint removed. A review of Engineering Change 15145 determined that the licensee used Entergy Procedure PS-S-002, "Pipe Support Operability," which relies on using ASME, Section III, Appendix F, allowable factors to justify continued operability. However, NRC Inspection Manual Part 9900, "Operability Determinations," paragraph C.10 guidance, only allows the use of Appendix F of Section III of the ASME Boiler and Pressure Vessel Code for operability determinations when a degradation or nonconformance associated with piping or pipe supports is discovered. There was no mention of using the code allowables in Appendix F to justify operability to perform planned maintenance and intentionally affect the current licensing basis seismic requirements. This interpretation was confirmed with NRR Systems and Technical Specifications Branches. Corrective Action 3 of Condition Report CR-ANO-C-2009-1408 added an administrative clarification to Engineering Change 15145 and Engineering Change 14216 to disallow future use. The action to change the status of the engineering changes from closed to cancelled in the Asset Suite software was requested on August 20, 2009, and completed on September 23, 2009.

On October 15, 2009, inspectors questioned Unit 2 operations personnel concerning a preventative maintenance activity for the train B containment spray recirculation valve 2CV-5672-1. Operations personnel confirmed that the 2CV-5672-1 preventative maintenance would involve the removal of another rigid seismic restraint. The inspectors identified that the shift manager approved, and documented, an operability determination for this activity using a cancelled engineering change document (engineering evaluation). Based upon the licensee conclusions in Condition Report CR-ANO-C-2009-1408 and discussions the inspectors previously had with NRC headquarters engineering staff, the inspectors determined that the canceled engineering change was not appropriate to justify the removal of the rigid seismic restraints for preventative maintenance purposes.

The licensee discontinued the maintenance activity and entered the issue into the corrective action program as Condition Report CR ANO-2-2009-3356. Another operability determination was performed by operations, and the valve and the train were declared operable.

The inspectors reviewed the second operability evaluation. That operability evaluation again utilized cancelled Engineering Change EC-14216. The licensee made the determination that, while the engineering change was not appropriate for planned maintenance, the condition in question should now be considered as having been "discovered" in a degraded or nonconforming condition. The inspectors disagreed with this position because the licensee did not discover a degraded or nonconforming condition, but actually created the degradation through maintenance and the lack of an adequate engineering calculation. The removal of the seismic restraint not only affected train B of containment spray, but also challenged the operability of the train A containment spray because the valves in question were connected to the same recirculation header. The inspectors determined that, without an adequate engineering evaluation, both trains of containment spray were inoperable for approximately 31 minutes during the time period when the rigid seismic restraint was removed for maintenance, and that Unit 2 should have entered Technical Specification 3.0.3. The inspectors determined that this issue was not reportable because the entry into Technical Specification 3.0.3 was not longer than one hour. The licensee restored the restraint and placed the containment spray system in its designed configuration. The licensee also wrote another Condition Report, CR-ANO-2-2009-3794, to perform a past operability of the event and determine the applicability of Technical Specification 3.0.3 during this 31-minute time frame.

Analysis. The failure of the licensee to follow the requirements of Procedure EN-OP-104, "Operability Determination Process," Revision 4, and approve an adequate basis for operability, was a performance deficiency. The performance deficiency was determined to be more than minor because the condition of not performing adequate operability determinations could become more significant if left uncorrected, and is therefore a finding. Using Manual Chapter 0609, "Significance

Determination Process," Phase 1 Worksheet, the finding was determined to have very low safety significance because it did not result in the loss of safety function of any technical specification required equipment. It was determined that the finding had a crosscutting aspect in the area of problem identification and resolution associated with the corrective action program [P.1(c)], in that, the licensee failed to thoroughly evaluate problems such that the resolutions addressed causes and extent of conditions as necessary.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions and drawings. Procedure EN-OP-104, "Operability Determination Process," Revision 4, requires that the shift manager document the basis for operability when a degraded or nonconforming condition is identified. Contrary to this requirement, on October 16, 2009, the documented bases for operability for degraded conditions did not adequately support the basis for an operability position taken by the shift manager. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR-ANO-2-2009-3794, this violation is being treated as a noncited violation consistent with Section VI.A of the Enforcement Policy: NCV 05000368/2009005-01, "Failure to Follow Procedure Results in an Inadequate Operability Determination."

.2 Emergency Diesel Generator Ventilation Susceptibility to the Depressurization Effects of a Tornado

Introduction. The inspectors identified an unresolved item associated with the licensee's lack of analysis to demonstrate the capability of the emergency diesel generator ventilation systems of either Units 1 or 2 to withstand the differential pressure effects of a tornado.

Description. During an NRC inspection in May 2005, NRC inspectors questioned whether the licensee's ventilating and air conditioning system and other components in an emergency diesel generator room would be able to operate safely during and after a tornado event. Specifically, the NRC staff questioned whether wind pressures and differential pressures caused by a tornado passing directly over the emergency diesel generator building could adversely affect safety-related systems and components inside the emergency diesel generator building. The emergency diesel generator combustion air intake and exhaust system was constructed in such a way that it was exposed to ambient pressure from the outside and therefore would be exposed to the pressure differential that would be created by a tornado passing over the building.

In response to the NRC questions, the licensee conducted an industry wide survey revealing approximately 25 other plants with a licensing basis similar to their own. As a result, on December 6, 2006, the NRC issued Regulatory Information Summary 2006-23, "Post-Tornado Operability of Ventilating and Air-Conditioning Systems Housed in Emergency Diesel Generator Rooms." The purpose of Regulatory Information Summary 2006-23 was to notify licensees of the NRC's regulatory position regarding loading effects caused by natural phenomena to safety-related systems and components housed inside a structure partially exposed to the outside environment. In particular, ventilating and air conditioning systems housed in the emergency diesel generator room.

The NRC expects licensees to consider natural hazards during the design of systems and components housed inside safety-related structures if these systems and components may be exposed to the outside environment and if their malfunction or loss may prevent or impact the operability of safety-related systems and components. Vented ventilating and air conditioning ducts, and other internal safety-related systems and components, may be subjected to the effects of rapid room depressurization and repressurization and other effects associated with a tornado event. In some cases, the loss of structural integrity of ventilating and air conditioning systems may pose a challenge to the safe operation of the facility. In such cases, licensees should take any necessary measures to ensure the operability of ventilating and air conditioning duct systems located in emergency diesel generator rooms.

On December 6, 2006, Entergy initiated Condition Report LO-LAR-2006-0171 to have all sites perform a review of Regulatory Information Summary 2006-023. Specifically, each site was to determine if the sites design had adequately considered tornado wind and pressure drop effects on safety-related systems and components inside building structures open to the outside environment.

On April 12, 2007, the licensee completed the review and concluded that the plants design criteria to comply with General Design Criteria GDC-2 requires that the structure remain fully functional before, during, and after a tornado event without exceeding code allowables. The original designers accomplished this by (1) designing the external structure (walls, ceilings, floors) to resist tornado winds, missiles, and depressurization; and (2) providing missile barriers near openings into the building where a missile trajectory could potentially directly strike a safety-related system/component. The temporary effects associated with a rapid external depressurization of systems and components were not considered in the original analyses. The safety-related components of Arkansas Nuclear One’s heating, ventilation, and air conditioning system are protected from tornados and other natural events by being located within the protection of reinforced concrete structures. Arkansas Nuclear One’s reinforced concrete structures that house safety-related equipment are designed to resist the effects of tornado conditions. For these structures, the ventilation system intakes and exhausts are designed to resist tornado generated missiles. However, neither the design basis nor licensing basis requires ventilation systems to be designed for the differential pressures associated with a tornado. Units 1 and 2 were licensed before the issuance of Regulatory Guide 1.76 and are not committed to it.

Based on interactions with the Entergy fleet, the licensee subsequently determined that it would be prudent to further evaluate the tornado depressurization event and its potential impact on the diesel generator room’s ventilation systems. The licensee initiated Condition Report CR-ANO-C-2007-1308 to facilitate this. The licensee determined that this evaluation would not become part of the stations licensing basis but instead would provide reasonable assurance that the emergency diesel generator ventilation systems would not be damaged to the extent to render the emergency diesel generators inoperable.

The licensee performed subsequent calculations, based upon sound engineering principles, to evaluate the emergency diesel generator ductwork and emergency diesel generator inlet dampers in both units for effects of a tornado depressurization event. This calculation used the differential pressure in Regulatory Guide 1.76, Revision 1. The licensee concluded that initially closed emergency diesel generator inlet dampers would be rendered inoperable by the event and resulting deformations would prevent subsequent automatic opening. The licensee further concluded that the Unit 1 emergency diesel generator inlet ductwork to the combustion air filters would collapse and cut off airflow to the engines. Calculations also indicated that the suction ductwork to the exhaust fans in both units would also collapse and cut off airflow to the exhaust fans. Based on these results, station design engineering could not ensure with a high level of confidence that the emergency diesel generator combustion air and ventilation systems would remain functional after a tornado event.

The inspectors reviewed this position and calculations and determined that this was contrary to the regulatory position taken by the NRC in Regulatory Information Summary 2006-023. As such, the inspectors questioned the diesel generator room's ventilation systems capabilities of withstanding the rapid depressurization effects that can occur coincident with a tornado. Specifically, the inspectors concluded that the evaluations that had been performed to date did not provide a reasonable expectation of operability for the diesel generator room's ventilation systems in a tornado event.

The inspectors presented their concerns to the licensee and the licensee determined that further review was necessary to determine the acceptability of the identified issues. The licensee initiated Condition Report CR-ANO-C-2009-2296 to address these concerns. Subsequent evaluations identified compensatory measure was necessary to maintain the ventilation systems operable during a tornado event.

Analysis. The inspectors determined that the potential vulnerability to Units 1 and 2 emergency diesel generator ventilation ductwork will be treated as an unresolved item, pending further inspector review of the licensee's analysis. An unresolved item is an issue requiring further information to determine if it is acceptable, if it is a finding, or if it constitutes a violation of NRC requirements. In this case, additional NRC inspection will be required to assess the ability of the Unit 1 emergency diesel generator combustion air intake ductwork to cope with the rapid depressurization associated with a tornado event.

Enforcement. Additional information was needed to determine whether a violation of regulatory requirements occurred. Pending further review of additional information provided by the licensee, this issue is being treated as an Unresolved Item 05000313/2009005-07; 05000368/2009005-07, "Diesel Generator Ventilation Systems Susceptibility to the Depressurization Effects of a Tornado."

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- October 12, 2009, Unit 2, service water to shutdown heat exchanger control valve 2CV-1456-2 following preventative maintenance

- November 04, 2009, Unit 1, emergency diesel generator 2 following overhaul maintenance

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following:

- The effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed

- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

.1 Unit 2 Refueling Outage 2R20

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 refueling outage, conducted September 1, 2009, through September 25, 2009, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- Monitoring of decay heat removal processes, systems, and components
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system
- Controls over activities that could affect reactivity
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of primary containment to verify that debris had not been left which could block emergency core cooling system suction strainers and reactor physics testing
- Licensee identification and resolution of problems related to refueling outage activities

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings of significance were identified.

.2 Unit 2 Forced Outage Due to Main Feedwater Pump A Trip

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the Unit 2 forced outage conducted December 8, 2009, through December 9, 2009, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the refueling outage, the inspectors observed portions of the shutdown processes and monitored licensee controls over the outage activities listed below:

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service

- Monitoring of decay heat removal processes, systems, and components

- Controls over activities that could affect reactivity

- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of primary containment to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing

- Licensee identification and resolution of problems related to refueling outage activities

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the Safety Analysis Report, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning

- Evaluation of testing impact on the plant

- Acceptance criteria

- Test equipment

- Procedures
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- October 28, 2009, Unit 2, emergency feedwater pump 2P-7B

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one surveillance testing inspection sample as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the third quarter 2009 performance indicators for any obvious inconsistencies prior to its public release in accordance with NRC Inspection Manual Chapter 0608, “Performance Indicator Program.”

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Emergency ac Power System (MS06)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - emergency ac power system performance indicator for Units 1 and 2 for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, mitigating systems performance index derivation reports, issue reports, event reports, and NRC integrated inspection reports for the period of July 2008 through June 2009 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified.

These activities constitute completion of two mitigating systems performance index emergency ac power system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - High Pressure Injection Systems (MS07)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - high pressure injection systems performance indicator for Units 1 and 2 for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2008 through June 2009 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified.

These activities constitute completion of two mitigating systems performance index high pressure injection system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - heat removal system performance indicator for Units 1 and 2 for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of July 2008 through June 2009 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified.

These activities constitute completion of two mitigating systems performance index heat removal system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.5 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - residual heat removal system performance indicator for Units 1 and 2 for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2008 through June 2009 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified.

These activities constitute completion of two mitigating systems performance index residual heat removal systems sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.6 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - cooling water systems performance indicator for Units 1 and 2 for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2008 through June 2009 to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified.

These activities constitute completion of two mitigating systems performance index cooling water system samples as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure of licensee personnel to correct a condition adverse to quality - removal of rigid seismic restraint for valve 2CV-5672-1, containment spray pump 2P-35B minimum recirculation valve, in the support of motor-operated valve actuator maintenance with an invalid engineering change to support the containment spray system's seismic operability licensing basis.

Description. On April 29, 2009, the inspectors identified an issue with the process the licensee used to remove rigid seismic restraints on the motor-operated valve actuators for a safety-related seismic Category I valve in the support of actuator preventive maintenance. That led to the issuance of NCV 05000368/2009004-02, "Failure to Maintain Seismic Design Bases Control" documented in NRC Inspection Report 050003132009-04; 050003682009-04. On July 14, 2009, the licensee removed the rigid motor-operated valve actuator seismic restraint for valve 2CV-5128-1, high pressure safety injection pump 2P-89B minimum flow recirculation valve, to support motor-operated valve actuator maintenance. The licensee used Engineering

Change 15145 to justify system operability with the seismic restraint removed. The resident inspectors engaged licensee personnel after a review of Engineering Change 15145 determined that the licensee used Entergy Procedure PS-S-002, “Pipe Support Operability,” which relies on using ASME, Section III, Appendix F, allowable factors to justify continued operability. However, NRC Inspection Manual Part 9900, “Operability Determinations,” paragraph C.10 guidance, only allows the use of Appendix F of Section III of the ASME Boiler and Pressure Vessel Code for operability determinations when a degradation or nonconformance associated with piping or pipe supports is discovered. There was no mention of using the code allowables in Appendix F to justify operability to perform planned maintenance and intentionally affect the current licensing basis seismic requirements. This interpretation was confirmed with NRR Systems and Technical Specifications Branches. This issue of using ASME, Section III, Appendix F, code allowables for operability justification was entered into the licensee's corrective action program as Condition Report CR-ANO-C-2009-1408. Corrective Action 3 of that condition report added an administrative clarification to Engineering Change 15145 and Engineering Change 14216 to disallow future use. The action to change the status of the engineering changes from closed to cancelled in the Asset Suite software was requested on August 20, 2009, and completed on September 23, 2009.

On October 15, 2009, the licensee removed the rigid seismic restraint for valve 2CV-5672-1, containment spray pump 2P-35B minimum flow recirculation valve, to support motor-operated valve actuator maintenance using Engineering Change 14216 to justify operability to seismic design requirements. The inspectors reviewed Engineering Change EC-14216 status in Asset Suite software and informed the Unit 2 control room at approximately 9:18 a.m. that Engineering Change 14216 had been cancelled. The Unit 2 control room operators took immediate action to restore the seismic restraint. Review of the control room operator's logs indicated the restraint was removed from 9:12 a.m. until 9:43 a.m. This incident should have required an entry into Technical Specification 3.0.3 since this valve is connected to a common return header that services the other containment spray train, and may have affected the operability of both low pressure safety injection pumps, and all three high pressure safety injection pumps minimum flow recirculation valves. No evaluation had been performed to determine the impact on the other safety system train’s operability with this rigid seismic restraint removed. This issue has been entered into the licensee's corrective action program as Condition Reports CR-ANO-C-2009-2193, CR-ANO-2-2009-3356, and CR-ANO-2-2009-3794.

Analysis. The inspectors determined that the licensee personnel's failure to correct a condition adverse to quality associated with the removal of motor-operated valve actuator seismic restraints without an adequate engineering evaluation was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the protection against external events attribute of the Mitigating Systems Cornerstone and directly affected the associated cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and is therefore a finding. Specifically, the engineering change used to justify seismic operability was not valid to support continued operability and had been cancelled for future use. Using NRC Manual Chapter 0609, “Significance Determination Process,” Phase 1 Worksheets, Mitigating Systems Cornerstone, the finding was determined to have very low safety significance because it did not represent an actual loss of safety function and did not screen as potentially risk significant due to a seismic initiating event. The cause of this finding was determined to have a crosscutting aspect in the area of human performance associated with resources [H.2(c)] in that the licensee failed to have complete and accurate procedures to prevent engineering changes that had been cancelled from being used in work orders that had been previously planned and approved for work.

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” requires, in part, that “Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected.” Contrary to the above, licensee personnel failed to promptly correct a condition adverse to quality, associated with the use of a cancelled engineering change, on October 15, 2009. Specifically, licensee personnel failed to identify that the engineering calculation used to support system operability during the performance of preventative maintenance activities had been cancelled; and that even if the engineering change had not been cancelled, the evaluation was inadequate because it relied on the use of ASME, Section III, Appendix F, allowables that can only be used for discovered conditions. Thus the corrective actions that were implemented did not correct the condition adverse to quality. This issue has been entered into the corrective action program as Condition Reports CR-ANO-C-2009-2193, CR-ANO-2-2009-3356, and CR-ANO-2-2009-3794. Because this violation was of very low safety significance, the violation is being treated as a noncited violation consistent with NRC Enforcement Policy: NCV 0500368/2009005-02, “Failure to Correct a Condition Adverse to Quality Associated with Removal of Rigid Seismic Restraints.”

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee’s corrective action program. The inspectors accomplished this through review of the station’s daily corrective action documents.

The inspectors performed these daily reviews as part of the daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of July 2009 through December 2009 although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-up Inspection- Failure to Scope Floor Drain into Maintenance Rule

a. Inspection Scope

During a review of documentation of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting an issue associated with the licensee's failure to appropriately monitor a station high energy line break door as required by 10 CFR 50.65(a)(2). As a result of this review, the inspectors identified a separate issue associated with room floor drains that potentially affected the doors ability to remain shut to isolate safety-related equipment from a main feedwater critical crack high energy line break event. The inspectors determined that this issue was similar to prior identified instances where station personnel had failed to recognize and scope nonsafety-related structures, systems, and components whose failure could prevent safety-related components from fulfilling their safety-related function in the station's maintenance rule monitoring program. The inspectors selected this issue for review because failure to properly scope plant systems in the stations maintenance rule monitoring program could have a negative impact on other station equipment and cause plant transients. The inspectors considered the following, as applicable, during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of corrective actions; and (7) completion of corrective actions in a timely manner.

These activities constitute completion of one in-depth problem identification and resolution sample as defined in Inspection Procedure 71152-05.

b. Findings

Introduction. The inspectors identified an unresolved item associated with the licensee's failure to appropriately monitor nonsafety-related structures, systems, and components whose failure could prevent safety-related components from fulfilling their safety-related function.

Description. The inspectors reviewed Station Calculation CALC-01-EQ-1001-01, "MFW Critical Crack HELB Analysis," Revision 0. During this review the inspectors noted that (1) Door 19, a high energy line break door, was credited with isolating the emergency feedwater pumps from a harsh environment in the event of a main feedwater critical crack high energy line break event, (2) the door was assumed to remain closed as long as the differential pressure across the door remained less than 1 psid during the event, (3) the atmospheric pressure calculated in the room during the high energy line break event was 0.8 psi, and (4) a water accumulation in the room during the event was predicted to be 6 inches.

The inspectors questioned the predicted value for water accumulation based on the assumed geometry of the crack in the feedwater piping. Further review of the calculation and discussions with station design engineers revealed that this water accumulation value was based on the modeling assumption that the drains were 4-inch openings which connected to other rooms through the drain system. The premise of this assumption was that the larger drain size would model the potential effects of steam transmission to other rooms through the floor drain system, therefore, determining if another room would have a potentially harsh environment created during this event.

The inspectors questioned the validity of this modeling assumption. While it would be conservative for predicting potentially harsh environments in adjacent rooms, it appeared to be nonconservative for predicting the amount of water that would pool in the room and apply pressure to Door 19. With the drains modeled as 4-inch openings, the results appeared to under estimate the amount of water that would pool in this room.

The inspectors determined that the amount of water that would pool in the room was important to determining whether Door 19 would be forced open during a main feedwater critical crack high energy line break event. Specifically, the pressure applied to Door 19 from the atmospheric pressure change due to the high energy line break event, in conjunction with the pressure that would be felt by the door due to water accumulation could potentially exceed 1 psid, and this would cause the door to open and expose the emergency feedwater pumps to a harsh environment.

The inspectors informed the licensee of their concerns. The licensee initiated Condition Report CR-ANO-1-2009-1421 to address these concerns.

Analysis. The inspectors determined that the potential vulnerability to the Unit 1 emergency feedwater pumps during a main feedwater critical crack high energy line break event will be treated as an unresolved item pending further inspector review of the licensee's analysis. An unresolved item is an issue requiring further information to determine if it is acceptable, if it is a finding, or if it constitutes a violation of NRC requirements. In this case, additional NRC inspection will be required to assess the ability of high energy line break Door 19 to remain shut during a main feedwater critical crack event.

Enforcement. Additional information was needed to determine whether a violation of regulatory requirements occurred. Pending further review of additional information provided by the licensee, this issue is being treated as an Unresolved Item 05000313/2009008-08, "Failure to Appropriately Scope Floor Drains in the Stations Maintenance Rule Monitoring Program."

4OA3 Event Follow-up (71153)

.1 Unit 2 Loss of Shutdown Cooling on September 20, 2009

a. Inspection Scope

On September 20, 2009, inspectors responded to the site due to a notification from site management that Unit 2 had lost shutdown cooling for approximately 5 minutes. The inspectors arrived in the Unit 2 control room and observed plant operations and conducted several interviews with operations and management personnel. The inspectors also performed a thorough and complete control room walkdown and reviewed plant data records to verify appropriate plant response. Operations was in the process of performing an 18-month fast transfer test on the train A emergency safeguards bus power supply from startup transformer 2 to startup transformer 3. Due to the fast transfer relay failure, the train A engineered safeguards bus supply power was slowly transferred to the startup 3 transformer. The momentary under voltage condition allowed bus loads to drop (low pressure safety injection pump tripped) and caused emergency diesel generator 1 to start. Operators quickly identified the loss of shutdown cooling, entered the appropriate abnormal operating procedure, manually restarted the pump, and re-established shutdown cooling. The inspectors also reviewed the initial licensee notification to verify that it met the requirements specified in NUREG-1022, "Event Reporting Guidelines," Revision 2.

b. Findings

Introduction. The inspectors documented a Green, noncited violation of Technical Specification 6.4.1.a, for the licensee's failure to follow operations Procedure OP-1015.008, "Unit 2 SDC Control," Revision 30. Specifically, Unit 2 operators did not obtain permission from operations or plant management prior to performing maintenance on any protected train components, which led to a loss of shutdown cooling.

Description. On September 20, 2009, Unit 2 was in Mode 5 at 138°F and reactor coolant system level was at 50 percent in the pressurizer. Both trains A and B of shutdown cooling was operable but only the train A shut down cooling was in service. Per Procedure OP-1015.008, Unit 2 SDC Control", Revision 30, and the Arkansas Nuclear One Shutdown Operations Protection Plan, dated August 18, 2009, both trains of shutdown cooling were declared protected systems. Protected equipment or systems are defined by Operating Procedure OP-1015.008 as, "Key plant equipment or systems whose failure would substantially increase the risk of core damage or containment failure if it were to become unavailable while redundant or related equipment is out of service." At 5:11 a.m., Unit 2 shutdown cooling was inadvertently lost while the operations test team was performing an offsite power fast transfer test on the electrical power supply for the protected equipment, train A, shutdown cooling system.

Arkansas Nuclear One typically uses an operations test team to conduct surveillance activities during outages. The test team is comprised of one senior reactor operator and two reactor operators. The test team is responsible for working with the control room to identify opportunities to perform the surveillances. The operations test team had twice attempted to perform the offsite power transfer test but were denied due to plant conditions. On September 20, 2009, although both shutdown cooling systems were declared protected systems, the control room granted permission to perform the offsite power transfer test. According to the root cause investigation, it had become routine to perform surveillance tests on protected equipment due to the large amount of testing required to be performed and the limited outage time to perform these surveillances.

A brief was conducted for the surveillance test. The brief emphasized human performance as a mistake could cause the loss of shutdown cooling and sequence in which the test was to be performed. There was no discussion on the possible effects of an equipment failure would have on the equipment that was powered by the vital bus. That being stated, to help ensure that shutdown cooling would not be lost, operators decided to perform the test on the train B vital bus, the bus without shutdown cooling aligned, to ensure that the test worked correctly. Following a successful test on train B, the train A vital bus, the bus with shutdown cooling aligned, surveillance test would then be performed.

The surveillance test was performed on the train B vital bus without any issues. The operation test team then performed the surveillance on the train A vital bus. During this test, the fast transfer relay failed to actuate the fast transfer circuit as designed. The back up to the fast transfer circuit, the slow transfer circuit, actuated but this type of transfer caused a momentary under voltage condition that dropped all loads from the vital bus. One of the loads on this vital bus was the low pressure safety injection pump (shutdown cooling). The under voltage was sensed and caused the emergency diesel generator 1 to start. The emergency diesel generator started as designed, but did not load the vital bus because the slow transfer had completed transferring power supply from startup transformer 2 to startup transformer 3 and was no longer de-energized. Operations entered abnormal Operating Procedure OP-2203.029, "Loss of Shutdown Cooling," Revision 14, and established shutdown cooling within 5 minutes of the pump trip. The licensee has entered this issue into the corrective action program as Condition Report CR-ANO-C-2009-2002.

The inspectors reviewed the licensee's root cause evaluation and the corrective actions taken and proposed corrective actions for operation's decision to perform surveillance activities on protected systems that led to the loss of shutdown cooling. Although there was an equipment issue that caused the slow power supply transfer to the train A vital bus, the operational surveillance test should not have been performed on the protected train equipment. The licensee's root cause evaluation determined that the failure of the operations test team to follow shutdown operations protection plan and the failure to follow Operating Procedure OP-1015.008 requirement that worked performed on a protected train must be approved by the operations manager or the plant manager. The root cause investigation also identified several contributing causes such as (1) lack of procedural guidance in the surveillance test procedure to ensure proper initial conditions for the test, (2) lack of structure to accomplish outage surveillance procedures that led to placing an unnecessary burden on the operations test team to find opportunities to complete surveillance and unnecessary burden on the shift manager to make too many risk assessments for every surveillance test and specific plant conditions, (3) lack of experience and preparation time for the members of the operation test team, (4) inadequate supervisory oversight from the shift operations manager oversight, (5) large, unscheduled surveillance work load during the outage, and (6) a general insensitivity and unfamiliarity, by operations personnel, concerning protected system, equipment strategy, and the risk of not abiding by this concept.

Analysis. The inspectors determined that the failure of the operations staff to follow Operating Procedure OP-1015.008, "Unit 2 SDC Control," Revision 30, was a performance deficiency. Specifically, the Unit 2 operations test team failed to obtain operations manager or plant manager permission prior to performing surveillance testing on protected systems or equipment. The performance deficiency was determined to be more than minor because it was associated with the human error attribute and adversely affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shut down conditions and is therefore a finding. Specifically, the failure to follow procedures led to the loss of the only train of shutdown cooling that was in service. This finding was evaluated for significance using NRC Manual Chapter 0609, "Significance Determination Process," Appendix G, Checklist 3, for shutdown operations, and was determined to be of very low safety significance because the core heat removal guidelines associated with instrumentation, training and procedures, and equipment were met. Specifically, both trains of shutdown cooling remained operable with necessary support systems. This finding was determined to have a crosscutting aspect in the area of human performance, associated with decision making [H.1(a)] in that the licensee failed to make a safety-significant or risk-significant decision using a systematic process, especially faced with uncertain or unexpected plant conditions, to ensure safety was maintained. Although the licensee formally defined the authority and roles for decisions affecting nuclear safety, the shift manager and the shift operations manager's oversight failed to implement their roles and authorities in deciding to conduct the offsite power transfer test on both protected trains of shutdown cooling.

Enforcement. Unit 2 Technical Specification 6.4.1.a, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Operating Procedure OP-1015.008, "Unit 2 SDC Control," Revision 30, states, in part, that the operations manager or plant manager must approve maintenance or surveillance activities on protected systems or components. Contrary to this, on September 20, 2009, Unit 2 operations staff failed to follow and implement this procedure by not contacting operations management or plant management for their approval prior to performing surveillance testing of the offsite power fast transfer on the protected system, train A shutdown cooling system, which resulted in a loss of shutdown cooling. Because this finding is of very low safety significance and has been entered into the corrective action program as Condition Report CR-ANO-C-2009-2002, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000368/2009005-03, "Failure to Follow Procedure Led to Loss of Shutdown Cooling."

.2 Unit 1 Downpower Due to Shad Run on October 12, 2009

a. Inspection Scope

On October 12, 2009, at approximately 2:30 a.m., Unit 1 was forced to reduce reactor power due to a sudden influx of Shad fish at the circulating water pump traveling screens. Operators reduced reactor power to 21 percent power. Following the removal of fish from the screens, reactor power was returned to 100 percent at approximately 12:45 p.m. the same day. Inspectors toured the control room the morning of the event to verify stable plant conditions, reviewed station logs, discussed the event with the operations staff and reviewed NUREG-1022, "Event Reporting Guidelines," Revision 2, to ensure licensee compliance. No event report was required.

b. Findings

Introduction. The inspectors documented a Green self-revealing finding for the licensee's failure to implement timely corrective action for industry operating experience associated with intake water blockage and for failure to implement effective corrective action stemming from a very similar event in 2006 where Unit 1 was forced to decrease reactor power to an unexpected Shad run.

Description. On October 3, 2009, the Unit 1 auxiliary operator noted a Shad intrusion at the site intake structure in the early hours of the morning. On October 5, 2009 at the morning operational focus meeting, the issue was discussed at length. Both operations and system engineering agreed to have maintenance deploy the fish nets that were originally scheduled to be deployed by October 26, 2009 (a regularly scheduled preventative maintenance work order). Maintenance discovered that only three of the six nets were available for deployment and that the other three would have to be ordered. The lead time for fabrication of the nets was estimated to be 6 weeks. Operations initiated the following interim compensatory measures: (1) operating the screen wash system continuously at night, (2) more frequent walk downs of the intake structure, (3) securing one of the three circulating water pumps (Pump 1P-3B) due to lower lake temperatures, and (4) just in time training for intakes structure issues was incorporate into the current requalification cycle.

Operations' increased walkdowns identified a "steady" influx of fish but it was determined to be easily manageable. On October 12, 2009, at approximately 1 a.m., the outside auxiliary operator completed a walk down of the intake structure and did not identify any issues. At 2:04 a.m., the Unit 1 control room received a fire pump auto start annunciator and dispatched the outside auxiliary operator to investigate. The auxiliary operator reported that a Shad run was in progress and the fish baskets were overflowing. The overflowing fish condition had clogged the temporary fire pump suction strainer, which caused the discharge pressure to drop, and caused the electric fire water pump to auto start. The circulating water traveling screens became burdened to the point where they stopped rotating. Operations decided to reduce reactor power to 95 percent due to the degrading conditions at the intake structure. Due to an issue with the unit load demand edgewise meter sticking, which caused the operator to hold the toggle switch longer, the actual reactor power ended up at 92 percent. Operations then began to stop and start circulating water pumps in order to relieve the differential pressure across the traveling screens to allow them to move so that they could be cleaned of debris. Operations aligned the train B service water pump to the emergency cooling pond as a precautionary measure. Unit 1 remained at 92 percent power until the Shad run abated and at 11:14 a.m., that same morning, the Unit 1 operator commenced a reactor power increase to 100 percent power. The licensee entered the event and identified equipment issues into the corrective action program as Condition Reports CR-ANO-1-2009-1880, CR-ANO-1-2009-1958, CR-ANO-1-2009-1992, and CR-ANO-1-2009-1882.

The inspectors reviewed the apparent cause evaluation as documented in Condition Report CR-ANO-1-2009-1880. The apparent causes were two fold: (1) no formal process to assess risk based on real time environmental conditions exists as previous triggers for action were based on historical data only and (2) industry and internal operating experience were not effectively used to prevent this issue nor were corrective actions taken from previously identified events adequate to prevent recurrence. The common denominator for both causes was the inadequate use of industry operating experience. Industry operating experience, as documented in Condition Report CR-C-2008-0039, addressed the concern of the intake cooling water blockage and had very specific recommendations to develop an environmental monitoring program to better assess conditions that could lead to an elevated probability of intake cooling water blockage events. The corrective action due date for this environmental program development was April 2010. The apparent cause identified gaps in the description of the corrective action and the operating experience recommendation and the untimely corrective action completion date.

The corrective actions from previous Arkansas Nuclear One events, while fairly effective, were not adequate to prevent the October 12, 2009, event. Previous site specific events include a Unit 1 reactor trip in December 1998 and a forced down power to 97 percent power due to Shad runs.

<u>Analysis</u>. The licensee's failure to take timely and effective corrective actions from industry and site specific operating experience was determined to be a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the external events attribute and directly affected the cornerstone objective to limit the likelihood of those events that upset plant stability and is therefore a finding. Specifically, the licensee failure to take timely and effective action led to the October 12, 2009, Unit 1 reactor down power due to a Shad (fish) influx into the intake structure. Using NRC Inspection Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, Initiating Events Cornerstone, the finding was determined to have a very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding did not have a crosscutting aspect because the cause of the performance deficiency was not associated with any of the crosscutting aspects listed in Manual Chapter 0305, "Operating Reactor Assessment Program," dated August 11, 2009.

<u>Enforcement</u>. While a performance deficiency was identified with regard to a Unit 1 force power reduction due to Shad (fish) influx at the circulating water intake structure, this system is not safety related, therefore, no violation of NRC requirements occurred. The licensee has entered this issue into the corrective action program as Condition Report CR-ANO-1-2009-1880: FIN 05000313/2009005-04, "Failure to Take Timely and Effective Corrective Action for Fish Influx and Blockage of Circulating Water Intake Structure Leads to Unit 1 Reactor Down Power."

.3 Unit 2 Manual Reactor Trip on December 8, 2009

a. Inspection Scope

On December 8, 2009, the inspectors responded to the Unit 2 control room due to operators performing a manual reactor trip in response to a loss of main feedwater. Main feedwater pump A had experienced a high temperature on the pump thrust bearing which resulted in operators manually tripping this pump. As a result of this action, operators entered the loss of main feedwater abnormal operating procedure, commenced emergency boration, and main turbine load was reduced. Subsequently, when steam generator A level reached 27 percent with no sign of recovery, operators initiated a manual reactor trip. The inspectors determined that the reactor was stable in Mode 3 and that there had been no complications during the trip. The inspectors discussed the event and the reactor condition prior to and following the trip with operators, shift manager, other operations management, and reviewed licensee's procedures and plant indications to verify proper operator actions and plant response. The inspectors also reviewed the initial licensee notification to verify that it met the requirements specified in NUREG-1022, "Event Reporting Guidelines," Revision 2. The inspectors also reviewed the licensee's posttrip report to assess the adequacy of the review and proposed corrective actions.

b. Findings

No findings of significance were identified.

.4 Review of Safety System Functional Failure on Submitted Licensee Event Report

a. Inspection Scope

The inspectors reviewed a past licensee event report to determine if the licensee was correctly applying the guidance provided in NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73."

b. Findings

Introduction. The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.73, "Licensee Event Report System," associated with the licensee's failure to submit a licensee event report within 60 days following the discovery of an event meeting the reportability criteria as specified.

Description. On September 22, 2009, the licensee completed their analysis of an issue associated with degradation of the latching mechanism of station high energy line break Door 19, see inspection finding NCV 05000313/2009004-03, "Inadequate Maintenance Procedure Governing Repairs to a Unit 1 High Energy Line Break." Based on the results of this analysis, the licensee determined that an unanalyzed condition may have existed for the period that Door 19, a high energy line break barrier, was unlatched. Also with this door unlatched, an engineering evaluation concluded that a main feedwater pipe critical crack high energy line break event would force the door open which would create a harsh environment in the adjoining emergency feedwater pump room. This would result in both trains of emergency feedwater being inoperable. Subsequently, on November 19, 2009, the licensee submitted Licensee Event Report 05000313/2009003-00, in accordance with 10 CFR 50.73(a)(2)(ii)(B), to report operation of the facility in an unanalyzed condition that significantly degraded plant safety.

The inspectors reviewed the licensee's event report that had been submitted to the NRC as well as the analysis performed by the licensee. During their review, the inspectors determined that the licensee had correctly identified and evaluated one reportability aspect. However, the inspectors noted that the analysis had also determined that with the degraded latch on Door 19, the emergency feedwater pumps would be inoperable for a main feedwater critical crack high energy line break.

The inspectors noted that the NRC has provided licensee's reportability guidance within the Statement of Considerations, Explanation of the Licensee Event Report Rule (FRN 48, No. 144, July 26, 1983), and within NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73." Each of these documents has the following guidance:

- If a component fails by an apparently random mechanism, it may or may not be reportable if the functionally redundant component could fail by the same mechanism. Reporting is required if the failure constitutes a condition where there is a reasonable doubt that the functionally redundant train or channel would remain operational until it completed its safety function or is repaired.

- The 10 CFR 50.73(a)(2)(v) criteria cover an event or condition where structures, components, or trains of a safety system could have failed to perform their intended function because of one or more personnel errors, including procedure violations; equipment failures; inadequate maintenance; or design, analysis, fabrication, equipment qualification, construction, or procedural deficiencies. The event must be reported regardless of whether or not an alternate safety system could have been used to perform the safety function.

Based on this information the inspectors determined that the condition identified on September 22, 2009, represented a condition that could have prevented both trains of the emergency feedwater system from performing its safety function. As such, the inspectors determined that this issue was reportable as defined by 10 CFR 50.73(a)(2)(v). Licensee Event Report 05000313/2009003-00 did not identify this reportable condition nor had the licensee submitted a separate licensee event report to inform the NRC of the instance that had been identified. Therefore, the inspectors concluded that the licensee had failed to report an instance that represented a loss of safety function of the emergency feedwater system. The inspectors informed the licensee of their concerns. The licensee initiated Condition Report CR-ANO-C-2009-2590 to address this concern.

Analysis. The inspectors determined that the licensee's failure to correctly submit a required licensee event report within 60 days after discovery of an event requiring a report to the NRC was a performance deficiency. The inspectors reviewed this issue in accordance with NRC Inspection Manual Chapter 0612 and the NRC Enforcement Manual. Through this review, the inspectors determined that traditional enforcement was applicable to this issue because the NRC's regulatory ability was affected. Specifically, the NRC relies on the licensees to identify and report conditions or events meeting the criteria specified in regulations in order to perform its regulatory function, and when this is not done the regulatory function is impacted, and is therefore a finding. The inspectors determined that this finding was not suitable for evaluation using the significance determination process, and as such, was evaluated in accordance with the NRC Enforcement Policy. The finding was reviewed by NRC management and because the violation was determined to be of very low safety significance, was not repetitive or willful, and was entered into the corrective action program, this violation is being treated as a Severity Level IV noncited violation consistent with the NRC Enforcement Policy. The finding did not have a crosscutting aspect because the cause of the performance deficiency was not associated with any of the crosscutting aspects listed in Manual Chapter 0305, "Operating Reactor Assessment Program," dated August 11, 2009.

Enforcement. Title 10 CFR 50.73(a)(1) requires, in part, that licensees shall submit a licensee event report for any event of the type described in this paragraph within 60 days after the discovery of the event. Title 10 CFR 50.73(a)(2)(v) requires, in part, that the licensee report any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to

- Shutdown the reactor and maintain it in a safe condition
- Remove residual heat
- Control the release of radioactive material
- Mitigate the consequences of an accident

Contrary to the above, the licensee failed to correctly identify an example, documented in Licensee Event Report 2009003-00, of a conditional inadequacy that could have prevented the fulfillment of the safety function of the Unit 1 emergency feedwater system. This finding was determined to be applicable to traditional enforcement because the failure to report conditions or events meeting the criteria specified in regulations affects the NRCs regulatory ability. The finding was evaluated in accordance with the NRC's Enforcement Policy. The finding was reviewed by NRC management and because the violation was of very low safety significance, was not repetitive or willful, and was entered into the corrective action program, this violation is being treated as a Severity Level IV noncited violation, consistent with the NRC Enforcement Policy: NCV 05000313/2009005-05, "Failure to Report a Safety System Functional Failure."

.5 <u>Review of 10 CFR 50.72 (b)(3)(xiii) 8-Hour Nonemergency Event Notification EN-45376 Regarding Loss of Power to Emergency Offsite Facility</u>

a. <u>Inspection Scope</u>

The inspectors reviewed a past licensee event report to determine if the licensee was correctly applying the guidance provided in NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73."

b. <u>Findings</u>

<u>Introduction</u>. The inspectors identified a Severity Level IV noncited violation of 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," for the licensee's failure to notify the NRC Operations Center within 8 hours following discovery of an event meeting the reportability criteria as specified.

<u>Description</u>. On September 21, 2009, at approximately 10:40 p.m., Arkansas Nuclear One experienced a loss of the London line 161 KV that resulted in a loss of power to the emergency offsite facility. This resulted in a start signal to the emergency offsite facility diesel generator K8. In response to this power loss, operations personnel dispatched telecommunications and information technology personnel to the emergency offsite facility to evaluate the status of the facility. Upon arrival at the facility, it was determined that the diesel generator at the facility had started but was not supplying power to the facility. The telephone system was operable via power from the facility battery bank. At approximately 11:45 p.m., telecommunications personnel called the control room and informed them of the facility condition and the outage control center dispatched electricians to evaluate the diesel generator. After spending several hours attempting to repair the diesel generator K8, it was determined that a vendor would be required to complete repairs. At approximately 4:20 a.m. on September 22, 2009, the London line 161 KV was restored and power to the emergency offsite facility was restored. At 5:11 a.m. on September 22, 2009, Condition Report CR-ANO-C-2009-2016 was initiated to document the deficiency. Following restoration of normal power, at approximately 8 a.m., computer support personnel discovered that the safety parameter display system at the emergency offsite facility was not functioning. At 8:15 a.m. the safety parameter display system terminals were returned to service. At 8:46 a.m. Condition Report CR-ANO-C-2009-2020 was initiated to document this deficiency. Due to the time that the emergency offsite facility was degraded, this was considered a major loss of assessment, communications, and response capability, and the licensee initiated a 10 CFR 50.72 (b)(3)(xiii) 8-hour nonemergency report at 12:46 p.m. CST to the NRC Operations Center.

During the afternoon of September 22, 2009, ANO operations staff notified the resident inspectors of the 8-hour event notification to the NRC Operations Center. The inspectors questioned whether the timing of the NRC notification met the requirements of the applicable regulation. In response, the licensee initiated Condition Report CR-ANO-C-2008-2024 to capture the fact that the notification may not meet the 8-hour timeliness requirement. That investigation identified that the control room had been notified of the fact that diesel generator K8 was not supplying electrical power to the emergency offsite facility at 11:45 p.m. on September 21, 2009, and that using the event time of 5:11 a.m. to initiate Condition Report CR-ANO-C-2009-2016 was nonconservative.

Analysis. The failure to report an applicable nonemergency 8-hour event notification report within the required time frame was determined to be a performance deficiency. The finding was determined to be applicable to traditional enforcement because the NRC's ability to perform its regulatory function was potentially impacted by the licensee's failure to make a required notification within the specified time frame. The finding was not suitable for evaluation using the significance determination process and was therefore evaluated in accordance with the NRC's Enforcement Policy. The finding was reviewed by NRC management and was determined to be of very low safety significance (Severity Level IV). The cause of this finding was determined to have a crosscutting aspect in the area of human performance associated with resources, [H.2(c)], in that the licensee failed to have complete and accurate procedures to properly evaluate problems when faced with unexpected conditions.

Enforcement. Title 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," requires, in part, that the licensee shall notify the NRC Operations Center within 8 hours after discovery of a nonemergency event described in paragraph (b)(3)(xiii). Paragraph (b)(3)(xiii) of 10 CFR 50.72 requires that any event that results in a major loss of emergency assessment capability, offsite response capability, or offsite communications capability shall be reported within 8 hours of discovery. Contrary to this, on September 22, 2009, the licensee failed to notify the NRC Operations Center within 8 hours after the discovery of an event that resulted in a major loss of offsite response capability. Because the finding is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR-ANO-C-2008-2024, this violation is being treated as an NCV consistent with Section VI.A of the Enforcement Policy: NCV 05000313/2009005-06, 05000368/2009005-06 "Failure to Notify the NRC within Eight Hours of a Nonemergency Event."

.6 (Closed) LER 05000313/2008001, "Two Manual Reactor Trips from Power in Response to Abnormal Control Rod Movement Caused by Control Rod Drive Control System Component Degradation"

On December 12, 2008 at 8:55 a.m., following startup from Refueling Outage 1R21, Unit 1 was holding stable at 32 percent reactor power in order to perform nuclear instrumentation calibrations. Control room operators received an asymmetric rod alarm and noted an abnormal rod response with reactor power lowering. At this point, operations manually tripped the reactor. On December 20, 2008, at approximately 12:12 p.m. with Unit 1 at approximately 100 percent power, control room operators received an asymmetric rod alarm and noted abnormal rod pattern on Group 7 with reactor power lowering. Operations then manually tripped the reactor. The licensee performed a root cause analysis and determined the cause to be a failure of the auto bus transfer relays K1 and/or K2 (inadequate preventive maintenance). The licensee determined that these relays were original equipment and were degraded. Also, there were no preventive maintenance tasks or replacement strategies associated with these relays. The licensee considered this the most likely reason for the abnormal control rod operation. The licensee event report was reviewed by the inspectors and one NRC identified finding of very low safety significance was identified and documented in supplemental Inspection Report 05000313/2009008. The licensee documented the issue in the corrective action program as Condition Reports CR-ANO-1-2008-2761 and CR-ANO-1-2008-2742. This licensee event report is closed.

.7 (Closed) LER 05000313/2009001, "Manual Reactor Trip from Power in Response to a Loss of Control Rod Drive Cooling Water Flow Due to a Gasket Failure Which Resulted in Air Intrusion into the Intermediate Cooling Water System"

At 3:24 p.m. on February 5, 2009, Unit 1 reactor was manually tripped due to a loss of control rod drive cooling water flow. This loss of control rod drive cooling water flow was caused by a blown head gasket on the service air compressor C-3A introducing large quantities of air into the nonnuclear intermediate cooling water system. This resulted in cavitation of pump 1P-33A intermediate cooling water pump and both control rod drive cooling pumps 1P-79A and 1P-79B. This loss of control rod drive cooling water flow caused control rod drive temperatures to approach 180^{o}F, the reactor trip criteria for Operating Procedure OP-1203.003, "CRD Malfunction Actions Procedure." The licensee performed a root cause analysis and determined the cause to be (1) Original Design Inadequate: The Unit 1 service air compressors were cooled by the closed loop intermediate cooling water system. The design utilized the nonnuclear side of intermediate cooling water as the compressor's cooling water supply. This cooling system was also used to cool the control rod drive motors. When the gasket failed, service air entered the cooling water system and affected control rod cooling, (2) Inaccurate Design Documentation/Prints: The torque values specified for the compressor head bolts in station engineering documents were not correct. The licensee event report was reviewed by the inspectors and one self-revealing finding of very low safety significance was identified and documented in integrated Inspection Report 05000313/2009002. The licensee documented the issue in the corrective action program as Condition Report CR-ANO-1-2009-0225. This licensee event report is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with Arkansas Nuclear One's security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting Summary

On January 14, 2010, the inspectors presented the inspection results to you and other members of your staff. You acknowledged the issues presented. The inspector asked whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as noncited violations.

- Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, measures to be established to assure that applicable regulatory requirements and the design basis, as defined in 10 CFR 50.2 and as specified in the license application, for those components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, the licensee approved nonconservative engineering calculations for two safety-related, motor-operator valve actuators where the adapter plate bolts were not included in the seismic and weak link engineering calculation, and eight safety-related, motor-operated valve actuators whose adapter plate installed bolts were smaller than those included in the applicable seismic and weak link engineering calculations. Specifically on September 11, 2009, during the performance of a postmaintenance test valve stroke for valve 2CV-4821-1, the 5/16-inch yoke to adapter plate fasteners failed during an over thrust event. Extent of condition review identified that valve 2CV-4820-2 seismic and weak link analysis did not include the adapter plate fasteners, and the seismic and weak link analysis for the following valves included adapter plate fasteners that were larger than what was actually installed in the field: Valves 2CV-3850-2, 2CV-0711-2, 2CV-0716-1, 2CV-8233-1, 2CV-5672-1, 2CV-5673-1, CV-2806, and CV-5611. This was licensee identified because the initial failure was discovered during postmaintenance testing of valve 2CV-4821-1, and the subsequent extent of condition review from the licensee's corrective action process identified additional valves that were affected. Using NRC Manual Chapter 0609, "Significance Determination Process," Phase 1 Worksheets, Mitigating Systems Cornerstone, the finding was determined to have very low safety significance because it did not represent an actual loss of safety function and did not screen as potentially risk significant due to a seismic initiating event. The issue was entered into the licensee's corrective action program as Condition Report CR-ANO-2-2009-2554.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

B. Berryman, General Manager, Plant Operations
D. Bice, Acting Manager, Licensing
E. Blackard, Acting Manager, Engineering Programs and Components
R. Crowe, Superintendent, Security
B. Daiber, Manager, Design Engineering
J. Eichenberger, Manager, Corrective Actions
M. Gohman, Shift Manager, Operations
D. James, Director, Nuclear Safety Assurance
R. Kremer, Shift Manager, Operations
J. McCoy, Acting Director, Engineering
N. Mosher, Licensing Specialist
C. O'Dell, Assistant Operations Manager
B. Pace, General Manager Vice President
J. Smith, Manager, Quality Assurance
K. Walsh, Vice President

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000313/2009008-07	URI	Diesel Generator Ventilation Systems Susceptibility to the Depressurization Effects of a Tornado (Section 1R15)
05000313/2009008-08	URI	Failure to Appropriately Scope Floor Drains in the Stations Maintenance Rule Monitoring Program (Section 4OA2)

Opened and Closed

05000368/2009005-01	NCV	Failure to Follow Procedure Result in an Inadequate Operability Determination (Section 1R15)
05000368/2009005-02	NCV	Failure to Correct a CAQ Associated with Removal of Rigid Seismic Restraints (Section 4OA2)
05000368/2009005-03	NCV	Failure to Follow Procedure Led to Loss of Shutdown Cooling (Section 4OA3)
05000313/2009005-04	FIN	Failure to Take Timely and Effective Corrective Action for Fish Influx and Blockage of Circulating Water Intake Structure Leads to Unit 1 Reactor Down Power (Section 4OA3)

05000313/2009005-05	NCV	Failure to Report a Safety System Functional Failure (Section 4OA3)
05000313/2009005-06; 05000368/2009005-06	NCV	Failure to Notify the NRC with 8 Hours of a Nonemergency Event (Section 4OA3)

Closed

05000313/2008001	LER	Two Manual Reactor Trips from Power in Response to Abnormal Control Rod Movement Caused by Control Rod Drive Control system Component Degradation (Section 4OA3)
05000313/2009001	LER	Manual Reactor Trip from Power in Response to a Loss of Control Rod Drive Cooling Water Flow Due to a Gasket Failure Which Resulted in Air Intrusion Into the Intermediate Cooling Water System (Section 4OA3)

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

PROCEDURES

NUMBER	TITLE	REVISION / DATE
OP-1203.025	Natural Emergencies	29
OP-2203.008	Natural Emergencies	19

Section 1RO4: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION
OP-2104.029	Unit 2 Service Water System Operations	78
OP-2106.006	Unit 2 Emergency Feedwater System Operations	75
OP-1104.036	Unit 1 Emergency Diesel Generator System Operations	50

DRAWINGS

NUMBER	TITLE	REVISION
M-2210	Unit 2 Service Water System	
M-22	Unit 2	
M-217	Unit 1 Emergency Diesel Generator K-4A (DG-1)	

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION
ULD-2-SYS-10	Unit 2 Service Water System	11

Section 1RO5: Fire Protection

PROCEDURES

NUMBER	TITLE	REVISION
FHA	Arkansas Nuclear One Fire Hazards Analysis	13
PFP-U1	ANO Prefire Plan (Unit 1)	12
PFP-U2	ANO Prefire Plan (Unit 2)	10

CALCULATIONS

NUMBER	TITLE
CALC-85-E-0053-056	Fire Area B-7 Combustible Loading Calculation
CALC-85-E-0053-028	Fire Area AA Combustible Loading Calculation

DRAWINGS

NUMBER	TITLE	REVISION
FZ-1045, Sheet 1	Fire Zone Detail - South Battery and DC Equipment Room	2
FZ-2103, Sheet 1	Fire Zone Detail - West Battery Room	2
FZ-2025, Sheet 1	Fire Zone Detail – Unit 2 Emergency Feedwater Pump 2P-7B (motor) Room	2
FZ-2010, Sheet 1	Fire Zone Detail – Unit 2 Service Water Intake Structure	2

Section 1R06: Flood Protection Measures

CONDITION REPORTS

CR-ANO-1-2009-1996	CR-ANO-1-2009-2032	CR-ANO-1-2009-2076
CR-ANO-1-2009-2017	CR-ANO-1-2009-2037	

CALCULATIONS

NUMBER	TITLE	REVISION
CALC-89-E-0048-35	ANO-2 Internal Flood Analysis	0
CALC-92-R-0024-01	Flooding Evaluation	0
CALC-92-R-0034-01	Flooding Evaluation	0

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE
ULD-0-TOP-17	ANO Flooding Topical
WO-209740-01	Manholes With Safety-Related Cables To Be Inspected

Section 1R12: Maintenance Effectiveness

PROCEDURES

NUMBER	TITLE	REVISION
OP-2305.026	Reg Guide 1.97 Instrument Verification	9
OP-2104.033	Containment Atmosphere Control	60

CONDITION REPORTS

CR-ANO-2-2008-0574	CR-ANO-1-2009-1955	CR-ANO-2-2009-0965
CR-ANO-2-2008-0563	CR-ANO-1-2009-2026	CR-ANO-2-2009-1162
CR-ANO-C-2009-1979	CR-ANO-1-2009-2066	CR-ANO-2-2009-1174
CR-ANO-1-2009-1029	CR-ANO-1-2009-2199	CR-ANO-2-2009-2114
CR-ANO-1-2009-1157	CR-ANO-1-2009-2280	CR-ANO-2-2009-2319
CR-ANO-1-2009-1842	CR-ANO-1-2009-2308	CR-ANO-2-2009-2468
CR-ANO-1-2009-1848	CR-ANO-1-2009-2419	CR-ANO-2-2009-2559
CR-ANO-1-2009-1894	CR-ANO-2-2009-0526	CR-ANO-2-2009-2866
CR-ANO-1-2009-1917	CR-ANO-2-2009-0540	

MISCELLANEOUS

NUMBER	TITLE	REVISION / DATE
	Maintenance Rule Database-Scoping and Performance Criteria-Unit 1 RPS	November 16, 2009
	Maintenance Rule Database-Scoping and Performance Criteria-Unit 2 Reactor Building Ventilation	October 19, 2009
ULD-2-TOP-03	ANO Unit 2 Containment Response to Design Basis Accidents	4
STM 2-09	Containment Cooling and Purge Systems [Unit 2]	16

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION
COPD-024	Risk Assessment Guidelines	28
OP-1015.001	Conduct of Operations	77

MISCELLANEOUS

TITLE	DATE
Switchyard Impact Statement	December 4, 2009
Switchyard Impact Statement	December 18, 2009

WORK ORDERS

00206853-06	C29970	00206853-07

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION
EN-OP-104	Operability Determination Process	4

CONDITION REPORT

CR-ANO-2-2009-3794

Section 1R19: Postmaintenance Testing

PROCEDURE

NUMBER	TITLE	REVISION
OP-1104.036	Unit 1 Emergency Diesel Generator Operations	50

WORK ORDERS

00128139-02	51641576-01

Section 1R20: Refueling and Other Outage Activities

PROCEDURES

NUMBER	TITLE	REVISION
OP-2102.002	Plant Heatup	66
OP-2102.004	Power Operation	43

Section 1R22: Surveillance Testing

PROCEDURE

NUMBER	TITLE	REVISION
OP-2106.006	Emergency Feedwater System Operations	75

WORK ORDER

51694799-01

Section 4OA1: Performance Indicator Verification

PROCEDURE

NUMBER	TITLE
EN-LI-114	Performance Indicator Process